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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of: McLeod et al.

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Group Art Unit: 3726

Serial No. 10/081,506

Examiner: E. Omgba

Filed: 2/22/02

For: **AUTOMOTIVE ROOF MODULE AND METHOD OF ASSEMBLY OF THE
MODULE TO AN AUTOMOTIVE VEHICLE**

Docket No. 61632 (1062.013)

Mail Stop Appeal Brief-Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313

SUBSTITUTE APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Sir:

This is an Appeal Brief under 37 C.F.R. § 1.192 appealing the Final
Rejection of claims in the above-referenced patent application, which were

rejected in an Office Action dated July 28, 2005. Each of the topics required by 37 C.F.R. § 1.192 is presented in this Brief and is labeled appropriately.

I. Real party in interest

DOW Global Technologies, Inc., (a Michigan Corporation) of Midland, Michigan ("DOW") is the real party in interest of the present application. An assignment of all rights in the present application to DOW was executed by the inventors and recorded by the U.S. Patent and Trademark Office.

II. Related appeals and interferences

There are no appeals or interferences related to the present application of which the Appellants are aware.

III. Status of claims

Claims 1, 3-18, 20 and 21 stand finally rejected by the Office Action of July 28, 2005. Appellants are canceling claims 1-8, 11, 13, 18-20. Appellants hereby appeal the final rejection of claims 9, 14, and 17 and their dependents, claims 10, 12, 15-16 and 21. Appellants respectfully request an indication of allowability of claims 9, 14, and 17 and their dependents or at least a reversal of the obviousness rejection of claims 9, 14, and 17 and their dependents.

IV. Status of Amendments

Appellants submitted a Response and Amendment Filed with the Appeal dated March 24, 2006 amending claim 17 and canceling claims 1, 3-8, 11, 13, and 18-20.

V. Summary of claimed subject matter

Independent claim 9 is generally directed to a method of assembling a roof module to an automotive vehicle. The method includes providing a roof module (10) that includes a roof portion (14) and a windshield (16) (page 2, lines 31-33 and Figure 1); disposing the windshield between A-pillars (40) of the roof portion (14) (page 5, lines 15-16 and Figure 1), the windshield configured for attachment to a body portion (12) of the automotive vehicle (page 7, lines 33-34 and Figure 1); assembling the roof module (10) to the body portion (12) of the vehicle (page 6, lines 24-25); wherein the roof portion (14) is connected to a pair of B-pillars and a pair of C-pillars of the vehicle body. (page 7, lines 26-32 and Figure 1).

Independent claim 14 is generally directed to the same method of assembling a roof module to an automotive vehicle as in claim 9 with the addition of having the windshield include an encapsulation covering (page 4, lines 7-9; and Figure 1).

Independent claim 17 is generally directed to a method of assembling a roof module to an automotive vehicle. The method includes providing a roof

module (10) that includes a roof portion (14) and a transparent panel (16) being selected from the group consisting of a windshield, a backlite, side glass, and combinations thereof (page 3, lines 1-6 and Figure 1); adhesively securing the panel (16) to the roof portion (14) (page 6, lines 5-13); securing a pair of A-pillars to the roof portion (14) (page 3, lines 28-34; page 7, lines 26-32 and Figure 1); assembling the roof module (10) to a body portion (12) of the vehicle by connecting the bottom end of the panel (16) to the body (12) using an adhesive having an elongation that is greater than about 300 percent (page 7, lines 26-34 to page 8, lines 1-25 and Figure 1); wherein the roof portion (14) is connected to a pair of B-pillars and a pair of C-pillars of the vehicle body (page 7, lines 26-32 and Figure 1) and wherein the bottom end of the panel (16) includes an encapsulation (page 4, lines 7-9; and Figure 1).

VI. Grounds of rejection to be reviewed on appeal

Appellants are seeking a withdrawal of the obviousness rejection of claims 9, 14, and 17 and their dependents, claims 10, 12, 15-16 and 21 and an indication of allowability of those claims. The grounds of rejection to be reviewed on appeal are the following:

- A. Claims 9, 14, and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hill et al. in view of Miyazaki et al., Hsieh et al., and Lumpe et al. (Applicants point out that the Office Action failed to list the Lumpe reference as one of the references cited against claim 9 on

page 6, paragraph 5 of the Action even though the Lumpe reference was used on page 8 in the same paragraph as one of the references to reject claim 9).

- B. Claim 17 stands additionally rejected under 35 U.S.C. 103(a) as being unpatentable in view of Bhat et al.

For purposes of the grounds presented by this appeal, Appellants note that a notice of allowance or a reversal of the obviousness rejection of claims 9, 14, and 17 is requested. Generally, Appellants believe that claims 9, 14, and 17 are each patentable for the reasons set forth in the Argument section below. Appellants note, however, that claim 17 is additionally patentable due to its use of an adhesive with a 300% elongation.

VII. Arguments

Summary of Arguments:

Appellants request that the obviousness rejection of claims 9, 14, and 17 be reversed on the following grounds: I) the motivation provided by the Office Action is insufficient to maintain an obviousness rejection against claims 9, 14, and 17 of the present application; II) the combination of Hill et al. and Lumpe et al. is impractical and may destroy the utility of the inventions disclosed in Lumpe et al., Hill et al. or both, which, in turn suggests that the combination of Hill et al. and Lumpe et al. is based upon impermissible hindsight; and III) the rejection of claims 9, 14, and 17 does not address the invention of those claims as a whole

thereby ignoring advantages of the methods of those claims. An additional ground for reversing claim 17 is its use of an adhesive with a 300% elongation.

Argument

A. The first grounds of rejection asserted by the Office Action of July 28, 2005 of claims 9, 14 and 17 (former claim 18) as being obvious should be withdrawn since: i) the motivation provided by the Office Action is Insufficient to maintain an obviousness rejection against claims 9, 14 and 17 of the present application; ii) the combination of Hill et al. and Lumpe et al. is impractical and may destroy the utility of the inventions disclosed in Lumpe et al., Hill et al. or both, which, in turn, suggests that the combination of Hill et al. and Lumpe et al is based upon Impermissible hindsight; and iii) the rejection of claims 9, 14 and 17 does not address the invention of those claims as a whole thereby ignoring advantages of the methods of those claims.

The Law

As stated in the MPEP, section 2141.02, "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) ".

Furthermore, The Court of Appeals for the Federal Circuit, in the case of In re Lee, 61 USPQ2d 1430 (CAFC 2002), wrote:

("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.");...

The need for specificity pervades this authority. See, e.g., In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"); In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("even when the level of skill in the art is high, the Board must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

Background and Argument Summary

Each method of claims 9, 14 and 17, as a whole, includes the provision of a roof module that includes a pair of A-pillars securing a windshield and assembly of that roof module to a body of an automotive vehicle and particularly to B-pillars and C-pillars of the body. The prior art references cited by the Office Action of July 28, 2005 do not, alone or in combination, suggest assembly of such a roof module to a body of vehicle as described.

The Office Action of July 28, 2005 rejected each of claims 9, 14 and 17 over a combination of Hill et al. (U.S Patent No. 6,493,970), Miyazaki et al. (U.S.

Patent No. 4,883,310), Hsieh (U.S. Patent No. 5,115,086) and Lumpe et al. (U.S. Patent No. 6,592,176). The Office Action of July 28, 2005, in rejecting each of claims 9, 14 and 17 (former claim 18), suggests, at page 7 and at other locations, that:

Although Hill et al./Miyazaki/Hsieh does not disclose connecting the roof portion of the vehicle to a pair of B-pillars and to a pair of C-pillars of the automotive vehicle body, however such connection of the roof module to the vehicle body is known as attested by Lumpe et al., ... Therefore it would have been obvious to ... have connected the roof portion of Hill et al./Miyazaki/Hsieh to a pair of B-pillars and a pair of C-pillars, in light of the teachings of Lumpe et al., in order to provide additional stiffening of the body of the vehicle.

Applicants contend, however, that the skilled artisan would be quite unlikely to combine Hill et al. and Lumpe et al. in the manner suggested by the Office Action for multiple reasons.¹ For one, the motivation provided by the Office Action is insufficient to maintain an obviousness rejection against claims 9, 14 and 17 of the present application. As another reason, the combination of Hill et al. and Lumpe et al. is impractical and may destroy the utility of that which is disclosed in Lumpe et al., Hill et al. or both, which suggests that the combination of Hill et al. and Lumpe et al. is based upon impermissible hindsight. As yet another reason, the rejection of claims 9, 14 and 17 does not address the invention of those claims as a whole thereby ignoring advantages of the methods of those claims.

The prior art reference Hill et al. discloses a roof module (14) having A-pillars (52) and C-pillars (54) and a windshield (62), side glass (64) and rear glass (also indicated as 62). This module is then assembled as a whole to a body (12)

of a vehicle wherein the body of the vehicle includes no pillars. The reference Lumpe et al. discloses a roof module (1 or 9) without any pillars or windows assembled to a vehicle body having all of the pillars (4, 5, 6, 7) of the vehicle. In contrast, the present invention, in claims 9, 14 and 17, is directed to a roof module having a windshield disposed between A-pillars and attachment of that module to B and C-pillars that are part of an automotive vehicle body.

I. The motivation provided by the Office Action is insufficient to maintain an obviousness rejection against claims 9, 14 and 17 of the present application

The Office Action of July 28, 2005, at page 12, suggests that the skilled artisan would have been motivated to connect "the roof portion of Hill et al./Miyazaki/Hsieh to a pair of B-pillars and a pair of C-pillars, in light of the teachings of Lumpe et al., in order to provide additional stiffening of the body of the vehicle." However, there is no indication in the prior art or the knowledge of the skilled artisan that connecting a roof module such as the module of Hill et al. according to the teaching of Lumpe et al. would provide such stiffening to an automotive vehicle body.

In particular, Lumpe et al suggests advantages of a roof module that connects to A-pillars and D-pillars on a vehicle body upon assembly of the module to the vehicle body. Lumpe et al., at col. 1, lines 40-55 reads:

As a particular advantage, it can moreover be provided that the roof rails on the side wall sections of the roof module extend in an

¹ Applicants do not mention Miyazaki and Hsieh as these references address features not pertinent to the arguments presented by Applicants.

approximately parallel alignment to each other above the roof outer panel and travel through openings in the roof module with lengthened end sections that form an angle or that are bent. The end sections of the roof rails can each be fastened to front body pillars, such as A-pillars, and rear body pillars, such as D-pillars... A particular advantage of this is that each roof rail in its entirety becomes a supporting part (i.e., structural part) of a motor vehicle, which reinforces the vehicle structure from the A-pillar to the C-pillar or D-pillar for example.

This method of connecting the roof rails to vehicle pillars in Lumpe et al. has no relevance to a roof module as recited in claims 9, 14, and 17 of the present application since the roof module of the present application already includes the A-pillars and windshield upon assembly. In particular, the Lumpe et al. method of connecting a roof module to the A-pillars and D-pillars would not be suitable for use in the module of the present invention since the A-pillars are already part of the roof module in claims 9, 14, and 17 of the present invention. Thus, the "lengthened end sections" (indicated with numeral 14 in Lumpe et al.) that are fastened to the A-pillars and D-pillars of vehicle body would be unworkable for the roof module of claims 9, 14, and 17, which already includes the A-pillars. Moreover, Lumpe et al. suggests that the strength provided by its roof module is due to the connection of the roof rails to the A-pillars and D-pillars by the "lengthened end sections". The skilled artisan would not be able to look to Lumpe et al. and believe that such strength benefits could be reaped using a roof module that already includes the A-pillars.

ii. The Combination of Lumpe et al and Hill et al is impractical and based upon impermissible hindsight.

As suggested, each of claims 9, 14 and 17 include a roof module having a windshield disposed between A-pillars and attachment of that module to B and C-pillars of an automotive vehicle body. To arrive at such a configuration through the combination of Lumpe et al. with Hill et al., an undue amount of reconstruction of the components of Lumpe et al. and Hill et al. would be required to arrive at the invention of claims 9, 14, and 17 and such construction would ruin the utility of Lumpe et al., Hill et al. or both. The A and/or C-pillars of Hill et al. would have to be removed from the module of Hill et al. and, at present, such pillars in Hill et al. support the backlite and side window of Hill et al. Moreover, for attachment to B and/or C-pillars according to Lumpe et al., at least the A-pillars and windshield of Lumpe et al. would have to be removed from the body of the vehicle to accommodate the roof module already having the A-pillars and windshield. Such a combination is certainly not specifically suggested by Hill et al. or Lumpe et al. Moreover, the motivation, as discussed above, does not suggest such a reconstruction of Hill et al. and Lumpe et al. and certainly, there is no indication from Hill et al., Lumpe et al. or the general knowledge of the skilled artisan that such a reconstruction would provide the "stiffening" suggested by the Office Action. Thus, applicants contend that such extensive reconstruction is evidence that the rejections based upon Hill et al. and Lumpe et al. are based upon impermissible hindsight and should be reversed.

Moreover, Lumpe et al., as discussed above, discloses the use of lengthened end sections that connect to A-pillars and D-pillars on a vehicle body.

After modifications of Lumpe et al. to remove the windshield and A-pillars, Lumpe et al. would not be suitable for use of such end sections for connecting to the A-pillar and D-pillars to assemble the roof module to the vehicle. Thus, Applicants contend that the unsuitability of the connections used in Lumpe et al. relative to the claims of the present invention is evidence that the rejections based upon Hill et al. and Lumpe et al. are based upon impermissible hindsight and should be reversed.

iii. The rejection of claims 9, 14, and 17 does not address the invention of those claims as a whole thereby ignoring advantages of the methods of those claims

As suggested, each of claims 9, 14, and 17 include a roof module having a windshield disposed between A-pillars and attachment of that module to B and C-pillars of an automotive vehicle body. In contrast, the "roof module" of Lumpe et al. does not include any pillars, nor a windshield while Hill et al. discloses a roof module having both A and C pillars. Applicants contend that the rejection of claims 9, 14, and 17 of the present invention fails to address those as a whole and therefore ignore advantages of the invention of those claims, which could not be foreseen from or attained by with the roof modules of Hill et al. or Lumpe et al.

As one of multiple potential advantages to the methodology of claims 9, 14, and 17, attachment of the roof module including the A-pillars and windshield to the B and C pillars of the body of the vehicle can allow for easier assembly to the body because the roof module can be brought in and assembled to the vehicle body at least partially and more easily from the front of the body as the body is

moved forward in an assembly line. Such assembly can make it unnecessary to stop the forward motion of the body on the assembly line during assembly of the roof module to the body, although such is not required for the present invention. As another advantage, attachment of the roof module to the B and C pillars of the body can assist in aligning the A-pillars and/or the windshield properly with the body for proper attachment (e.g., proper adhesion) of the windshield and/or A-pillars to the body. This can minimize what might otherwise require larger attachment tolerances.

In view of these advantages, it becomes clear that the considerations that went into the designs of the roof modules of Hill et al. and Lumpe et al. are quite different than the considerations that went into the design of the invention of claims 9, 14, and 17. Moreover, the advantages are provided by the invention of claims 9, 14, and 17 as a whole and these advantages are further evidence that the combination of Hill et al. and Lumpe et al. do not consider the subject matter of claims 9, 14, and 17 as a whole.

B. The second grounds of rejection asserted by the Office Action of July 28, 2005 of claim 17 should be withdrawn since there is no specific motivation provided for combining Bhat et al. with the other references of record.

The Office Action of July 28, 2005, in rejecting claim 17 and its dependents suggests at page 14 that, "it is known to use adhesives having an elongation ... greater than 300 percent in bonding an automobile windshield to the windshield

frame as attested by Bhat et al." The Office Action further suggests that, "it would have been obvious...to have used an adhesive having an elongation that is greater than about 300 percent...in order to shorten production time."

Applicants contend that the motivation provided by the Office Action is not sufficiently specific for maintaining the asserted obviousness rejection again evidencing that claim 17 was not considered "as a whole". In particular, the Office Action does not show how the prior art provides any specific motivation for providing an adhesive with elongation greater than about 300% for forming an adhesive connection between a bottom edge of a windshield and a body of vehicle wherein the transparent panel is already part of a roof module at the time of the adhesive connection. At best, the concept of "shortening production time" might suggest reasoning as to why an individual would use an adhesive with a shorter curing time in very general terms. However this concept does not suggest why an individual would be motivated to use an adhesive having elongation of 300% as employed with the roof module of the claims of the present application.

Applicants' inventive use of such an adhesive for the roof module of the present application can provide advantages during assembly of the roof module to the body of the vehicle. In particular, the 300% elongation can accommodate greater tolerances between the roof module, particularly the windshield, and the body of the vehicle during attachment, after attachment or both. Generally, tolerances for assembly of a roof module can be relatively large due to factors such as i) separate manufacture of the roof module from the body and ii) the fact

that a large, relatively hard to maneuver, roof module assembly is being positioned upon the body during assembly. Thus, the accommodation of the tolerances, by the adhesive, particularly for the roof module claimed in the present application, can be a reasonably significant advantage. For the foregoing reasons, claim 17 and its dependents are additionally patentable due to their use of an adhesive with a 300% elongation.

VIII. Claims Appendix

Claim 9: A method of assembling a roof module to an automotive vehicle, comprising:

providing the roof module wherein the roof module includes:

- a) a roof portion having a forward edge, a rearward edge, a pair of side edges and a pair of A-pillars extending from adjacent opposing corners of the roof portion; and
- b) a windshield having a top edge, a bottom edge and a pair of side edges wherein; (i) the top edge of the windshield is adhesively secured to the roof portion adjacent the forward edge of the roof portion and the side edges of the windshield are secured to the A-pillars; (ii) the bottom edge of the transparent panel is configured for attachment to a body portion of the automotive vehicle upon assembly of the roof module to the automotive vehicle; and (iii) the A-pillars and the body portion of the vehicle include corresponding mating structures for assisting in assembling the roof module to the body portion of the vehicle; and

assembling the roof module to the body portion of the vehicle by matingly fitting the mating structures of the A-pillars with the mating structures of the body portion and by adhesively securing the windshield to the body portion of the vehicle with a urethane adhesive;

wherein the step of assembling the roof module to the body of the automotive vehicle includes connecting the roof portion of the vehicle to a pair of B-pillars and to a pair of C-pillars of the automotive vehicle body.

Claim 10: A method as in claim 9 wherein a primer is utilized to assist the urethane adhesive in securing the windshield to the body portion.

Claim 12: A method as in claim 9 wherein the roof portion includes at least a portion of a global positioning system.

Claim 14: A method of assembling a roof module to an automotive vehicle, comprising:

providing the roof module wherein the roof module includes:

- a) a roof portion having a forward edge, a rearward edge, a pair of side edges and a pair of A-pillars extending from adjacent opposing corners of the roof portion; and
- b) a windshield having a top edge, a bottom edge and a pair of side edges wherein; (i) the top edge of the windshield is adhesively secured to the roof portion adjacent the forward edge of the roof portion and the side edges of the windshield are secured to the A-pillars; (ii) the bottom edge of the transparent panel is configured for attachment to a body portion of the automotive vehicle upon assembly of the roof module to the automotive vehicle; and (iii) the A-pillars and the body portion of the vehicle include corresponding mating structures for assisting in assembling the roof module to the body portion of the vehicle; and

assembling the roof module to the body portion of the vehicle by matingly fitting the mating structures of the A-pillars with the mating structures of the body portion and by adhesively securing the windshield to the body portion of the vehicle with a urethane adhesive;

wherein the windshield includes an encapsulation covering at least a portion of one of the edges of the transparent panel; and

wherein the step of assembling the roof module to the body of the automotive vehicle includes connecting the roof portion of the vehicle to a pair of B-pillars and to a pair of C-pillars of the automotive vehicle body.

Claim 15: A method as in claim 9 wherein the roof portion includes at least one vehicle impact countermeasure selected from the group consisting of an air bag and a structural reinforcement.

Claim 16: A method as in claim 9 wherein the top edge of the windshield is adhesively secured to the roof portion with a urethane adhesive.

Claim 17: A method of assembling a roof module to an automotive vehicle, comprising:

- a) providing a roof portion having a peripheral edge, two forward corner portions and two rearward corner portions and at least two intermediate side portions;
- b) providing a transparent panel having a top edge and a bottom edge, and being selected from the group consisting of a windshield, a backlite, side glass, and combinations thereof;
- c) adhesively securing the transparent panel to the roof portion adjacent the peripheral edge of the roof portion with a urethane adhesive for forming a roof module; and
- e) assembling the roof module to a body of an automotive vehicle;

wherein the step of assembling the roof module to the body of the automotive vehicle includes connecting the bottom end of the transparent panel to the body using an adhesive, the adhesive having an elongation that is greater than about 300 percent and wherein the step of assembling the roof module to the body of the automotive vehicle includes connecting the roof portion of the vehicle to a pair of B-pillars and to a pair of C-pillars of the automotive vehicle body and wherein the bottom end of the transparent panel includes an encapsulation.

Claim 21: A method as in claim 17 wherein the roof module is assembled in a first designated area of an assembly plant and the roof module is assembled to the body portion in a second designated area of the assembly plant.

IX. Evidence appendix

None.

X. Related proceedings appendix

None.

XI. Conclusion

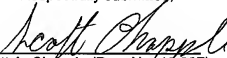
It is respectfully submitted that, based upon the above, the combination of Hill et al. and Lumpe et al. do not render the subject matter of claims 9, 14, and 17 obvious. Appellants respectfully request an indication of allowability for claims 9, 14, and 17 or at least a reversal of the obviousness rejection of claims 9, 14, and 17, along with the claims that depend therefrom.

If for some reason Appellants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge our Deposit Account No. 04-1512 for any fee which may be due.

Respectfully submitted,

Dated: December 5, 2007

By


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